

CLAIMS

What is Claimed is:

- 1 1. A process for compressing electronic data files used to display
2 images on a display of a control associated with a heating, ventilating, and air
3 conditioning system, said process comprising the steps of:
 - 4 noting the state of the first bit of a bitmapped file of information for an
5 image to be displayed;
 - 6 counting the number of consecutive bits having the same binary state
7 as the first bit;
 - 8 generating a numerical representation of the counted number of
9 consecutive bits having the same binary state as the first bit;
 - 10 counting the number of consecutive bits having the binary state of the
11 next bit in the bitmapped file of information and thereafter generating a numerical
12 representation of the counted number of consecutive bits having the same binary state
13 as the next bit in the bitmapped file; and
 - 14 repeatedly counting the next number of consecutive bits having a
15 binary state differing from that of the binary state of the previously counted number of
16 consecutive bits and thereafter generating a numerical representation of the next
17 number of consecutive bits having the binary state differing from that of the binary
18 state of the previously counted number of consecutive bits until there are no
19 remaining bits of information to be counted in the bitmapped file.
- 1 2. The process of claim 1 wherein each of said steps of generating
2 a numerical representation of the counted number of consecutive bits comprises the
3 steps of:
 - 4 dividing the count of consecutive bits by a constant;
 - 5 defining a numerical representation as to the multiple of the constant
 - 6 when there is no remainder in the resulting quotient; and

7 defining a numerical representation as to the multiple of the constant
8 plus the remainder when the resulting quotient includes a remainder.

1 3. The process of claim 2 wherein said step of defining a
2 numerical representation as to the multiple of the constant comprises the step of:
3 defining a number of equal valued bytes of information , the number of
4 such bytes being equal to the multiple of the constant, the number of equal value bytes
5 being followed by a further byte equal to the constant.

1 4. The process of claim 3 wherein said step of defining a
2 numerical representation as to the multiple of the constant plus the remainder when
3 the quotient includes a remainder comprises the step of:

4 defining a number of equal valued bytes of information wherein the
5 number of such bytes is equal to the multiple of the constant, the number of equal
6 value bytes being followed by a further byte equal to the remainder.

1 5. The process of claim 2 wherein the constant is representative of
2 the maximum numerical value of a byte of information.

1 6. A process for reading a stored file of information used to
2 display images on a display within a control associated with a heating, ventilating, and
3 air conditioning system comprising the steps of:

4 reading the state of the first pixel from the stored file of information;
5 reading a plurality of equally valued bytes of information from the
6 stored file of information;

7 setting the same number of pixels equal to the state of the first pixel for
8 each equally valued byte of information that is read wherein this same number of
9 pixels is not the value of each of the equally valued bytes of information;

10 reading a byte of information from the stored file of information that is
11 not the value of each of the equally valued bytes of information;

12 setting a number of pixels equal to the value of the read byte of
13 information that is not the value of each of the equally valued bytes of information;
14 reading a further plurality of equally valued bytes of information from
15 the stored file of information ;
16 setting the same number of pixels equal to a state opposite from the
17 state of the previously set number of pixels for each of the further equally valued
18 bytes of information that are read wherein the same number of pixels equal to a state
19 opposite from the state of the previously set number of pixels is in each case not the
20 value of each of the equally valued bytes of information;
21 reading a byte of information from the stored file of information that is
22 not the value of each of the equally valued bytes of information;
23 setting a number of pixels equal to the value of the read byte of
24 information; and
25 repeating said steps of reading a further plurality of equally valued
26 bytes of information from the stored file of information and setting the same number
27 of pixels equal to a state opposite from the state of the previously set number of pixels
28 for each of the further equally valued bytes of information that are read and further
29 reading a byte of information from the stored file of information that is not the value
30 of each of the equally valued bytes of information; and setting a number of pixels
31 equal to the value of the read byte of information until all bytes of information have
32 been read.

1 7. The process of claim 6 wherein said step of setting a number of
2 pixels equal to the value of the read byte of information that is not the value of each of
3 the equally valued bytes of information comprises the steps of:

4 determining whether the read byte of information is equal to a
5 predefined value;

6 defining a prescribed number of next occurring pixels based on the
7 predefined value when the read byte of information is equal to the predefined value;
8 and

9 defining a prescribed number of next occurring pixels based on the
10 numerical value of the read byte of information when the numerical value of the read
11 byte of information is not the predefined value.

1 8. The process of claim 7 wherein the prescribed number of pixels
2 in said step of defining a prescribed number of next occurring pixels based on the
3 numerical value of the read byte of information is a constant representative of the
4 maximum numerical value of the number of bits in a byte.

1 9. A system for storing bitmapped files used to display images
2 associated with the control of a heating, ventilating, and air conditioning system, said
3 system comprising:

4 a memory for storing information;
5 a processor operative to read bits of a bitmapped file and count the
6 number of successive bits of the same binary state and to thereafter divide the count of
7 the number of successive bits by a constant and to thereafter define at least one byte of
8 information based on the resulting quotient.

1 10. The system of claim 9 wherein said processor is furthermore
2 operative when defining at least one byte of information to include the constant in at
3 least one byte when the quotient does not include a remainder.

1 11. The system of claim 10 wherein said processor is furthermore
2 operative when defining at least one byte of information to include the remainder of
3 the quotient in at least one byte of information when the quotient includes a
4 remainder.

1 12. The system of claim 2 wherein the constant is representative of
2 the maximum numerical value of a byte of information.

1 13. A system for displaying bitmapped files of data used to display
2 images associated with the control of a heating, ventilating, and air conditioning
3 system, said system comprising:

4 a memory for storing information;

5 a display for displaying images;

6 a processor operative to read information stored in said memory
7 wherein said stored information includes a number of bytes of information
8 collectively defining a numerical representation as to the number of consecutive
9 pixels in an image equal to a first pixel state followed by a number of bytes of
10 information collectively defining a numerical representation as to the number of
11 consecutive pixels in the image equal to a second pixel state opposite to said first
12 pixel state, each number of bytes including a number of equally valued bytes wherein
13 the number of equally valued bytes is an integer obtained by dividing the number of
14 consecutive pixels in the image of the given state by a numerical constant.

1 14. The system of claim 14 wherein each number of bytes of
2 information defining a numerical representation includes either a byte having the
3 numerical constant or a byte having a remainder generated by the division of the
4 number of consecutive pixels in the image of the given state by the numerical
5 constant.

1 15. The system of claim 14 wherein the numerical constant is
2 representative of the maximum numerical value of a byte of information.